XBRL – The business Language in the Digital Age

Florin Radu
Valahia University of Târgovişte
florinuniv@yahoo.fr

Abstract

In many areas of activity, the passage to the digital support for documents or, more broadly, for information consisted only in the simple replacement of the old documents from classic paper size in text files. Normally, this allowed a considerable economy of paper, allowed archiving and dissemination of these documents, and to some extent even facilitated the search for data. However a whole host of other benefits of the digitalization of information have remained unexploited. Thus, unlike a specific search where it would be indicated exactly the search criteria must be fully read all the documents available when among them are searched only those documents of interest at a time. This happens because the data contained in these files, although they are "digitized", are not sufficiently "marked" to be able to be handled by the information processing tools, the manual intervention of the human user remaining, under these circumstances, unavoidable.

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J.E.L. classification: M15, M41

1. Introduction

The main impediment in the external reporting of financial information is related to the owner format of each document that displays this information. In order that the financial reporting to be intelligible, data needed for describing the reporting elements depend on these documents to understand the international context (Piechocki *et al*, 2007, pp. 889-900). Publication of financial and accounting information to the interested partners should not be restricted to the mere use of documents describing the situation of the entity.

It manifests with increased intensity the need to analyze the financial statements by tax authorities, credit institutions, auditing companies, investors or other partners directly interested in the financial status of the entity. In the context of the attempt to takeover and automated analysis of financial information by all stakeholders, it was acutely manifested the need for standardization of the transfer of the error-free accounting data in complete safety and in a uniform and intelligible format.

Automated external financial reporting and analysis is accompanied by a series of technical challenges (Andone, 2004, pp. 26-29):
- regional and even international differences relative to the reporting formats of the financial statements;
- geographically disparate systems or subdivisions of the same organizations, mean similar financial data but not necessarily in the same format;
- any new solution adopted for financial reporting involves extra effort with regard to the training of personnel involved in the activity in question;
- financial information involves a permanent monitoring of the correctness of its transfer in an electronic environment;
- the history of the reporting must be kept in solutions such as deposits of data which implies the extraction, processing and the simple upload with each reporting carried out.

A solution that successfully meets all these challenges is the language for business reporting XBRL (eXtensible Business Reporting Language), regarded as the standard for defining and

exchanging information related to the financial performance of the company.

XBRL is an international standard for publishing, sharing and financial analysis of reported data, which simplifies the preparation and publication of financial documents. The basic idea is to collect data once and convert them into multiple formats through automatic processing.

XBRL represents for the global business environment which represented the TCP/IP protocol to the Internet (Debreceny, *et al*, 2001, pp. 47-74). Probably this acronym, XBRL, will become as well known as HTML or IFRS. We believe that another comparison, found in our research is worth mentioning here: XBRL represented for EDI which represented the Internet to Minitel.

2. XBRL Taxonomy – computer grammar of the accounting regulations

XBRL can be used in any company to define the financial reporting specific to the field of activity of companies in question. It is a powerful and flexible language, designed to meet the requirements of a business and appropriate financial and accounting information.

The taxonomy is a XBRL concept which comprises one or more schemes (in the sense of XML Scheme or "XSD" file) and a set of XML files containing the links between the components. It is represented by dictionaries (vocabularies) the language is using; there are schemes of classification which define the specific labels for individual items of data (such as "net profit").

The XBRL standard creates a link between the information technologies (XML) and accounting standards (GAAP - Generally Accepted Accounting Principles), since a XBRL taxonomy is a translation of the GAAPs in XML documents. The work based on the XML ensures to the financial community a method for preparing based on standards, publication in a variety of formats, correct extraction and automatic exchange of the financial statements of the companies.

XBRL allows the software sellers, developers and users the necessary specifications in order to increase the creation, exchange and comparison of the reporting information, adding extendable semantics. This is possible by applying the concept of taxonomy.

Using XBRL, the application for the economic and financial reporting will be able to handle very easy the document, as each information item at the moment of the creation of the documernt in question was identified with a label.

The taxonomy is a systematic procedure for the classification of concepts in a hierarchically ordered group, in relation to their natural relationship. For example, each title of a theme of the Folder of the Golden Pages manual is an example of a category from a taxonomy (Andone, *et al*, p. 154).

Taxonomies describe the rules and the format in which information is required. They are created by the collecting authorities and are used by the suppliers of financial information to pass on their own accounting data in accordance with structures of the taxonomy used. Taxonomies make reference to a particular system of classification of the information reported.

The taxonomy has a set of rules that communicate the data to be included in a report, attributes that each information element must comply, or which are the rules to be used for the calculation of certain values. In XML terms, the taxonomy document shows the dictionary of labels used for the classification system of the financial facts, defining the content of the XBRL documents through the use of the standardized techniques XML Schema and XLink. XML Schemas used in taxonomy define the components corresponding to a concept which may be referred to by an XBRL document, and XML connections represent the relations between these concepts or concepts contained in the taxonomies and other sources of information (Stoica, 2004, pp. 27-30).

XBRL Schemas contain the basic elements of the facts. From the point of view of the accuracy of the accounting reporting, the definition of a fact require specifying the type of data associated to it (xbrli:stingItem, xbrli:monetaryItem, xbrli:dateTimeItem), its obligation, whether it is a debit or credit element of reporting and the type of the period for which it is reporting. Many of the XBRL facts are simple, reporting atomic and elementary values (for example: turnover in the situation of reporting of the Profit and Loss Account). XBRL also supports the concept of tuples which shall designate the logical grouping of several XBRL facts to be dealt with together in order to give the consistency of the information.

XBRL links (linkbases) represent the elements of taxonomy that provides information on the relations existing between the concepts of the taxonomy concerned, by putting them in

correspondence with external sources.

Depending on the aim pursued, these links are specialized in various categories (Bonsón, *et al*, pp. 46-60):

- Presentation Linkbase – define how elements should be grouped and sorted when presenting the report. Usually they correspond to certain existing financial document and do not specify formatting criteria.
- Calculation Linkbase – allow the definition of some totalization or simple aggregation, together with the specific rules for their validation for the purpose of providing an uniform mechanism of the accounting information by detailing operation (displaying an XBRL element in detail);
- Label Linkbase – allow XBRL elements to be associated with a particular name in order to allow the reading and understanding of XBRL instances. It is used mostly in exchange of financial information in multiple languages.
- Definition Linkbase – definitions allow specifying the relationships between different elements of the referenced taxonomy (the most common type being the parent-child relationship). For example, a relationship can describe that the occurrence of a certain concept in a XBRL instance to mandate the occurrence of another related concept.
- References Linkbase – specifies the relations between XBRL elements with the specifications drawn up by the authoritative literature governing the reporting. This type of connection allows the authority which defines the taxonomy to establish different rules of reporting, appealing to generally accepted practices for the field of financial accounting or to various standards.

In response to the need for alignment with the accounting standards generally accepted at the international or regional level, but also to ensure compliance with the accounting practices adopted by the companies, the XBRL standard is regularly completed with new taxonomies, which can be regarded as extensions of the language in order to respond to the specific circumstances. Among the most publicized and used taxonomies we remember (Locke, *et al*, 2009, pp. 585-623):

- XBRL-GL (General Ledger) – taxonomy used in particular for modeling the information necessary to achieve domestic financial reporting or at the level of the group;
- XBRL-IFRS for the preparation, design and submission of financial information and context concerned thereof, in compliance with the basic IFRS standards;
- XBRL-COREP (Common Reporting) which comply with the financial reporting in relation with the Basel II rules;
- XBRL-GAAP, reports relating to the financial statements in accordance with GAAP in the U.S.

From taxonomies above, XBRL-GL is enjoying lately an increasing attention in the research area but also among practitioners and developers of financial and accounting computer systems which perceive the opportunity of integrating the XBRL standard as formal support for transferring financial and accounting information not only for regular reporting statements but also for the purpose of analysis or audit. XBRL-GL standardizes the presentation of the internal financial statements present in documents obtained by logging periodic accounting in order to improve communication and transparency of information between different reporting entities (Bergeron, 2003, pp. 102-120).

3. The integration of information systems by XBRL

Although it is often associated with the introduction of the IFRS rules, XBRL is not a new set of accounting regulations. Its use does not require any change in the accounting practices, but XBRL adapts to the existing accounting references and also other references which allow the structuring of the information.

The financial directors continue to control the publication of the figures, and XBRL allows the improvement of communication and facilitates the management, treatment, display and re-use of the information communicated.

The necessity of integrating through XBRL was also due to the fact that PDF, CSV documents, Excel or other format, are difficult to treat and practically no not bring added value to a document submitted on paper, data in tables are often disconnected from the reality, are incomplete or out of date. Without using XML, the links between data displayed on a web page and their sources

(origin, references, notes) are problematic.

We can see that integrating XBRL allows information to live. By using XML technologies (XLink, XPointer, XPath, XQuery) the administration of links between reported data and other information (origin, references, notes), semantics and format are clearly defined. Several representations can be created showing vision and/or different levels of detail. It is possible to hide or display levels of detail and therefore information reaches faster the recipient because flows can be designed as common or "real time".

An XBRL platform architecture correctly provides an infrastructure that enables the organization and storage of XBRL documents in order to make them usable by many applications, local or remote, external or internal. An intermediary XBRL system must be able to convert and run the financial data of the information system and to transmit it after a conversion and/or possible adaptation in XBRL or any other format (TDFC, DADSU, CREICA).

The factor of success of a XBRL solution is to be able to convert, adapt and run the information obtained by the information system. Data with XBRL format must be separated from the information system data, generally stored in tabular structures which must remain unchanged. Many other elements of this puzzle must be put into practice:

- taxonomies should be developed in a collaborative manner to the needs of a sector and a given geographical area;
- evaluators should develop rules of audit to provide certifications for the XBRL documents, as it is already happening in the United States;
- applications of the financial information users must be able to read the data in this format.

Taxonomies define the content of XBRL documents, facts, as well as the attributes characterized (references) and links (calculations, presentations) along different views. The basic conditions are defined in collaboration between the members of the XBRL Consortium and organizations such as AICPA, FASB, IASB, as well as certain regulators such as CEBS in Europe or Banking Commission in France. These taxonomies can be supplemented by sectoral organizations or companies to consider the specific issues such as structures, particular ventilations, profession regulations.

All taxonomies, basic or supplemented, define agreements between partners, between a sender and a recipient of the report, between organizations or within a company. These agreements specify the semantics of the data and rules to be followed for their treatment or presentation.

A XBRL report is not limited to purely financial data. XBRL, originally called XFRML (Extensible Financial Reporting Mark-up Language) was renamed XBRL (Extensible Business Reporting Language) to consider professional reports and information that are not directly financial, such as names, addresses, statistics, risk levels. XBRL GL is a special taxonomy that translates semantics specific to the accounting field. This taxonomy aims at allowing basic accounting data transmission (accounting notes, ledger, journals) between computer systems.

The technology required for the implementation of XBRL is the same as that used for systems integration. Organizations can thus continue to use existing infrastructure such as relational databases, desktop applications suck as Office. XBRL is a supple and quite "intrusive" technology allowing preservation of existing investments.

It is therefore necessary to install an infrastructure that combines XBRL report definitions and logistics components to include them. An XBRL document (called instance document) contains reported data, their context, measurement units used, precision and possibly notes associated to them. These data and rules are defined in XBRL specifications. Computers adapted to XBRL can treat these documents, can check rules compliance and can treat, display or store them.

Like all XML technologies, XBRL is ideal for the integration into service-oriented architectures (SOA or Service Oriented Architecture). Service Oriented Architecture (SOA) enables applications interaction of different organizations on different platforms using different operating systems and languages. It allows the definition and use of organizations' internal or external professional services.

XBRL and Web services enable the exchange of reports verified and certified: XBRL provides professional source data verification, Web services enable with XML associated technologies, to ensure the integrity, confidentiality, data origin.

4. Conclusions with regard to the importance of XBRL for financial reporting

XBRL is the fastest means of communication, easy and effective for the financial information. It provides both the content and structure of the financial and accounting data of any kind, and beyond.

Since the creation of primary documents and other documents concerning the operations of collection and processing of financial and accounting information and to legal requirements and other statements of any kind, XBRL has developed a unitary vocabulary, recognized and respected by these entire documents reported on the Internet throughout the information lifecycle.

XBRL has a very vast field of application, adapted to both the private banking or industrial sector and the public sector. It is designed as a standard language that can be used in any company to define domain-specific financial reporting documents of interest. One of the most important examples relate to the financial services industry.

The necessity to use XBRL emanates primarily from regulatory bodies and thus appears as normality the fact that by external reporting companies are familiar with XBRL.

We consider that XBRL should not be stuck only in the external reporting. By its detailed approaching, element by element, XBRL is a powerful tool to rationalize the internal financial processes within a group. It will be the more effective the closer the group is decentralized or has a heterogeneous computing environment. As defined every time in a precise and non-ambiguous manner, XBRL is a choice able to make disparate systems to communicate with each other. As we have seen, XBRL enables validation before transmission which significantly improves the quality of information provided.

At the same time, being a unique referential, independent of applications in which the context of each data is known, XBRL can be a good choice also for consolidation instruments or decisional databases.

Public power can also be, equally, interested in the XBRL in several ways. First, it has the opportunity to use XBRL for its internal needs. Another priority axis would be streamlining the accounting, financial and tax information required to companies. To avoid a multiplicity of forms, it is possible to define a taxonomy targeting information required to companies and their relevance, thus achieving a potential reduction of administrative tasks estimated at 25%. It is obtained by improving the consistency of data transmitted, each information being transmitted only once.

To use XBRL globally, the necessity of software applications emergence arises, to contribute at achieving its benefits in all geographic areas of the world.

The positive impact of XBRL on decision support systems in business is particularly high. Let us imagine just how decision makers in large companies open their personal computers in the morning and can access information automatically extracted from competing companies or the media or the financial press. And because XBRL contains information specific to assist decision it can extract the information and put it in a favourable context. Due to the specific information contained in an XBRL label, it is possible to automatically locate and recover pieces of information from a document or report and to use them in a system for assisting decision.

In the years to come, as other laws will be adopted and other software will be developed, it will become easier to move data from one company to another or from one database to another. This means that decision makers and analysts will have much faster and easier access to information updated in real time, which means faster and better decision making.

5. References

1. Andone, I., 2004, XBRL – a ney language for accounting and finance professionals, *Revista Informatica Economică*, Nr. 2(30)/2004, pp. 26-29
2. Andone, I., Tabără, N., 2006, *Contabilitate. Tehnologie şi competitivitate*, Editura Academiei Române, Bucureşti, p. 154
3. Bergeron, B., 2003, *Essentials of XBRL - Financial Reporting in the 21st Century*, John Wiley & Sons, New York, pp. 102-120

4. Bonsón E., Cortijo V. and Escobar T., 2009, Towards the global adoption of XBRL using International Financial Reporting Standards (IFRS), In *International Journal of Accounting Information Systems*, Volume 10, Issue 1, pp. 46-60

5. Debreceny, R., Gray, G. L., 2001, The production and use of semantically rich accounting reports on the internet: XML and XBRL, în *International Journal of Accounting Information Systems*, Volume 2, Issue 1, pp. 47-74

6. Locke, J., Lowe, A., 2007, XBRL: An (Open) source of enlightenment or disillusionment, *European Accounting Review* 16(3), 585-623

7. Piechocki, M., Felden, C., 2007, XBRL Taxonomy Engineering. Definition of XBRL Taxonomy Development Process Model, In Österle, H., Schelp, J., Winter, R., *Proceedings of the Fifteenth European Conference on Information Systems*, University of St. Gallen, St. Gallen, p. 183, pp. 889-900

8. Stoica, M., 2004, Bussines Report Based on XBRL, *Revista Informatica Economică*, Nr. 3(31), pp. 27-30